

**FUTURE FISHERIES IMPROVEMENT PROGRAM
GRANT APPLICATION**

(please fill in the highlighted areas)

I. APPLICANT INFORMATION

A. Applicant Name: Carol Endicott

B. Mailing Address: 1354 Highway 10 West

C. City: Livingston State: MT Zip: 59047

Telephone: (406) 222-3710 (cendicott@mt.gov)

D. Contact Person: Carol Endicott

Address if different from Applicant:

City: State: Zip:

Telephone:

E. Landowner and/or Lessee Name (if other than Applicant): June Kinnick

Mailing Address: 346 Cokedale Road

City: Livingston State: MT Zip: 59047

Telephone: 222-7035

II. PROJECT INFORMATION*

A. Project Name: Miner Creek Yellowstone cutthroat trout conservation

River, stream, or lake: Miner Creek

Location: Township T2N Range R8E Section 26

County: Park County

B. Purpose of Project:
The purpose of this project is improve habitat and water quality for Yellowstone cutthroat trout in a reach of Miner Creek associated with a highly degraded stream crossing and adjacent corrals.

C. Brief Project Description:

Miner Creek, a tributary of Billman Creek, supports an unhybridized to slightly hybridized population of Yellowstone cutthroat trout. This project addresses a small portion of Miner Creek that receives considerable pressure from horses crossing the stream when accessing pasture from nearby corrals. The existing culvert is nonfunctioning, and horses ford the stream, resulting in an overly wide channel and mud banks. This crossing is also a source of stock water, increasing the tendency for horses to congregate along the banks and bed of the stream. The area between the corrals and stream crossing is bare dirt (mud when wet), and does not filter sediment and nutrients contributed from the adjacent corrals.

This project will include several components. First, the existing, nonfunctioning culvert and adjacent rock will be removed, and replaced with an much larger EcoArch™ culvert and two over flow pipes, along with a road grade. Fencing installed from the gate of the corrals will funnel horses to the established crossing and across to the pasture on the other side of the stream. A gravity fed off-channel stock tank will provide water within the corrals. Creation of a vegetated buffer in the areas protected by fencing will filter nutrients and sediment coming from the adjacent corrals. The buffer will include contouring of an infiltration depression that will capture sediment and nutrients not filtered by the reestablished vegetation. Installation of gravel along the upland portions stream crossing corridor will decrease sediment loading to Miner Creek

This project will protect about 75 feet of stream bank and channel. About 100 yd² of adjacent riparian area and uplands will be revegetated and excluded from grazing. In addition, the corridor leading horses from corrals to pasture will be covered with a road mix to prevent erosion and trailing.

D. Length of stream or size of lake that will be treated:

E. Project Budget:

Grant Request (Dollars): \$ **36,663**

Contribution by Applicant (Dollars):

\$

In-kind

\$

(salaries of government employees are not considered as matching contributions)

Contribution from other Sources (Dollars):

\$ 122.10

In-kind

\$ 4,875

(attach verification - See page 2 budget template)

Total Project Cost: \$ **41,782**

F. Attach itemized (line item) budget – see template

See Attachment A

G. Attach specific project plans, detailed sketches, plan views, photographs, maps, evidence of landowner consent, evidence of public support, and/or other information necessary to evaluate the merits of the project. If project involves water leasing or water salvage complete supplemental questionnaire (fwp.mt.gov/habitat/futurefisheries/supplement2.doc).

See Attachment B

Attach land management and maintenance plans that will ensure protection of the reclaimed area.

See Attachment B

III. PROJECT BENEFITS*

A. What species of fish will benefit from this project?

Yellowstone cutthroat trout will be the primary beneficiary of this project, although mottled sculpin are also potentially present. Genetic testing of Yellowstone cutthroat trout in the mid-1980s found mostly unhybridized Yellowstone cutthroat trout, although 3 of the 55 fish tested were first generation hybrids. In 2009, FWP sampled one of the reaches sampled in 1986, and found healthy numbers of Yellowstone cutthroat trout bearing no obvious signs of hybridization. Analysis of these samples is pending.

B. How will the project protect or enhance wild fish habitat?

This project will result in localized improvements in habitat quality for Yellowstone cutthroat trout by allowing the channel to recover following years of heavy use by livestock. Yellowstone cutthroat trout spawn within the disturbed area, and trampling likely limits survival of these embryos. Likewise, proximity to corrals means this area constitutes a point source of sediment and nutrients, so implementing the best management practices (BMPs) of fencing and off-channel water will reduce loading of pollutants to the stream.

C. Will the project improve fish populations and/or fishing? To what extent?

By restoring habitat and reducing sediment loading, this project will improve fish populations. During the electrofishing survey in June of 2009, redds were found immediately downstream of the stream crossing. Given the timing of sampling, these redds were likely recent; however, fine sediment had already begun to clog the interstices within spawning gravels. The level of fine sediment was likely sufficient to smother embryos, and greatly reduce survival-to-emergence of Yellowstone cutthroat trout fry. Moreover, these redds were within areas used by horses for watering and crossing the stream, making trampling a substantial threat to fish reproduction.

D. Will the project increase public fishing opportunity for wild fish and, if so, how?

This project will not increase public fishing opportunity, beyond that which is already available. Miner Creek is not a destination fishery; however, local children, and some adults, fish this stream.

E. If the project requires maintenance, what is your time commitment to this project?

The landowners will be responsible for maintaining the project. Miner Creek has a healthy stand of willows along much of its length, and maintenance will include removing debris from the new culverts following high flows. In addition, the fencing that will funnel livestock from the corrals, across the stream, and to the adjacent upland pasture will require periodic maintenance and repair. These actions will occur as part of the regular ranch operations.

F. What was the cause of habitat degradation in the area of this project and how will the project correct the cause?

The cause of habitat degradation includes an undersized culvert and heavy use by horses and other type of livestock over the years. Currently, horses are the

predominant species, but in the past, this crossing accommodated cattle, goats, and sheep. Flooding in 2011 exacerbated damage to the disturbed area. The surrounding areas with intact riparian function weathered the flood with no evidence of disturbance except for flood debris caught on high branches of willows.

G. What public benefits will be realized from this project?

The public benefits include the improved populations of Yellowstone cutthroat trout, improved water quality, and elimination of trampling of redds. Combined, these small projects demonstrate that the existing collaboration among agencies and landowners are sufficient in protecting, improving, and maintaining Yellowstone cutthroat trout within their historic range, and show protection under the Endangered Species Act is unwarranted. Implementation of projects such as this one is consistent with the strategic planning to prevent listing of Yellowstone cutthroat trout and secure their numbers and distribution

H. Will the project interfere with water or property rights of adjacent landowners?
(explain):

No.

I. Will the project result in the development of commercial recreational use on the site?:
(explain):

No.

J. Is this project associated with the reclamation of past mining activity?:

No.

Each approved project sponsor must enter into a written agreement with the Department specifying terms and duration of the project.

IV. AUTHORIZING STATEMENT

I (we) hereby declare that the information and all statements to this application are true, complete, and accurate to the best of my (our) knowledge and that the project or activity complies with rules of the Future Fisheries Improvement Program.

Applicant
Signature:

Date:

Sponsor (if
applicable):

***Highlighted boxes will automatically expand.**

**Mail To: Montana Fish, Wildlife & Parks
Habitat Protection Bureau
PO Box 200701
Helena, MT 59620-0701**

Incomplete or late applications will be returned to applicant.

Applications may be rejected if this form is modified.

*****Applications may be submitted at anytime, but must be received by the Future Fisheries Program office in Helena before December 1 and June 1 of each year to be considered for the subsequent funding period.*****

Attachment A: Budget

WORK ITEMS (ITEMIZE BY CATEGORY)	NUMBER OF UNITS	UNIT DESCRIPTION*	COST/UNIT	TOTAL COST	CONTRIBUTIONS			
					FISHERIES REQUEST	IN-KIND SERVICES	IN-KIND CASH	TOTAL
Personnel								
Survey	10	hours	\$100.00	\$ 1,000.00		\$ 1,000.00		\$ 1,000.00
Design ¹		no charge	\$0.00	\$ -				\$ -
Plans and Specifications ¹		no charge	\$0.00	\$ -				\$ -
Permitting ¹		no charge	\$0.00	\$ -				\$ -
Construction cost estimate ¹		no charge	\$0.00	\$ -				\$ -
Fence design and cost estimate	5	hours	\$30.00	\$ 150.00		\$ 150.00		\$ 150.00
Research appropriate watering device	2	hours	\$30.00	\$ 60.00		\$ 60.00		\$ 60.00
Office - Budget	3	hours	\$30.00	\$ 90.00		\$ 90.00		\$ 90.00
install off-channel water	15	hours	\$75.00	\$ 1,125.00		\$ 1,125.00		\$ 1,125.00
fencing labor & equipment rental	65	hours	\$30.00	\$ 1,950.00		\$ 1,950.00		\$ 1,950.00
Travel								
Mileage (NRCS)	222	mile	\$0.55	\$ 122.10			\$ 122.10	\$ 122.10
Per diem		included		\$ -				\$ -
Construction Materials								
Rock removal	5	hours	\$100.00	\$ 500.00		\$ 500.00		\$ 500.00
fence posts (T)	41	each	\$4.57	\$ 187.37	\$ 187.37			\$ 187.37
fence posts-Wood Brace	16	each	\$7.95	\$ 127.20	\$ 127.20			\$ 127.20
brace rail	5	feet	\$8.90	\$ 44.50	\$ 44.50			\$ 44.50
fencing	2	rolls	\$56.89	\$ 113.78	\$ 113.78			\$ 113.78
12'x5' open bottom arch pipe (installed)	30	ft	\$770.00	\$ 23,100.00	\$ 23,100.00			\$ 23,100.00
30" CMP	60	ft	\$55.00	\$ 3,300.00	\$ 3,300.00			\$ 3,300.00
hardened slope	20	yd ²	\$110.00	\$ 2,200.00	\$ 2,200.00			\$ 2,200.00
off-channel water device & cold-weather accessories	1	unit +shipping	\$550.00	\$ 550.00	\$ 550.00			\$ 550.00
Road mix	40	yd ³	\$55.00	\$ 2,200.00	\$ 2,200.00			\$ 2,200.00
BMPs/Erosion control blanket/seed	100		\$16.50	\$ 1,650.00	\$ 1,650.00			\$ 1,650.00
Equipment								
				\$ -				\$ -
Mobilization								
Mobilization, demobilization, & erosion control				\$ 3,190.00	\$ 3,190.00			\$ 3,190.00
				\$ -				\$ -
			TOTALS	\$ 41,660	\$ 36,663	\$ 4,875	\$ 122	\$ 41,660

¹Completed in house by FWP's design engineers and biologists

*Units = feet, hours, inches, lump sum, etc.

MATCHING CONTRIBUTIONS			
CONTRIBUTOR	IN-KIND SERVICE	IN-KIND CASH	TOTAL
Natural Resources Conservation Service	\$ 1,300.00	122.10	\$ 1,422.10
Landowners	3,575.00		\$ 3,575.00
Total	\$ 4,875.00	\$ 122.10	\$ 4,997.10

Attachment B

Attach specific project plans, detailed sketches, plan views, photographs, maps, evidence of landowner consent, evidence of public support, and/or information necessary to evaluate the merits of the project. If the project involves water leasing or water salvage complete supplemental questionnaire (fwp.mt.gov/habitat/futurefisheries/supplement2.doc).

Introduction

Miner Creek, a tributary of Billman Creek, originates along the Wineglass Mountain southeast of Livingston, Montana (Figure 1). The Billman Creek watershed is likely home to core or conservation populations¹ of Yellowstone cutthroat trout, giving the basin high conservation value. As the watershed is nearly entirely within private ownership, private landowners will be essential partners in meeting conservation goals for Yellowstone cutthroat trout. This project is the first known project aimed at improving habitat and water quality for Yellowstone cutthroat trout in the Billman Creek watershed, and will serve as a local showcase for collaborative conservation.

Habitat condition along the length of Miner Creek is variable, with considerable portions having intact, functioning riparian shrub communities and a stable channel. In other places, insufficient riparian buffer between the stream and hay meadows has resulted in channel downcutting and establishment of high, eroding terraces that contribute considerable volumes of fine sediment to Miner Creek, and ultimately Billman Creek. Moreover, concentrated animal feeding operations adjacent to the stream are common in the watershed. Billman Creek is a 303(d) listed stream with nutrients and sediment being probable causes of impairment. The 303(d) list status indicates water quality planning is forthcoming in the sub-watershed, and this small project will contribute towards this larger, watershed-scale effort.

Fisheries investigations in Miner Creek have been limited, but the available information suggests unhybridized or slightly hybridized fish occur in this stream. Genetic testing near the project site in the mid-1980s found 22 of the fish tested were unhybridized and the remaining 3 were first generation hybrids with rainbow trout (Leary 1986). Later that year, sampling at a site about 1 mile upstream yielded no indication of hybridization among the 28 Yellowstone cutthroat trout tested (MFISH database).

In 2009, Montana Fish, Wildlife & Parks (FWP) resampled the lower reach sampled in 1986 to evaluate species composition and collect genetic samples. Only apparent Yellowstone cutthroat trout, with no obvious indications of hybridization, were captured in this effort. Analysis of tissue

¹ Core populations have less than 1% of rainbow trout alleles. Conservation populations have less than 10% rainbow trout alleles.

samples collected from these fish is pending. Nonetheless, the lack of obvious morphological signs of hybridization was a promising find given the length of time since the last survey.

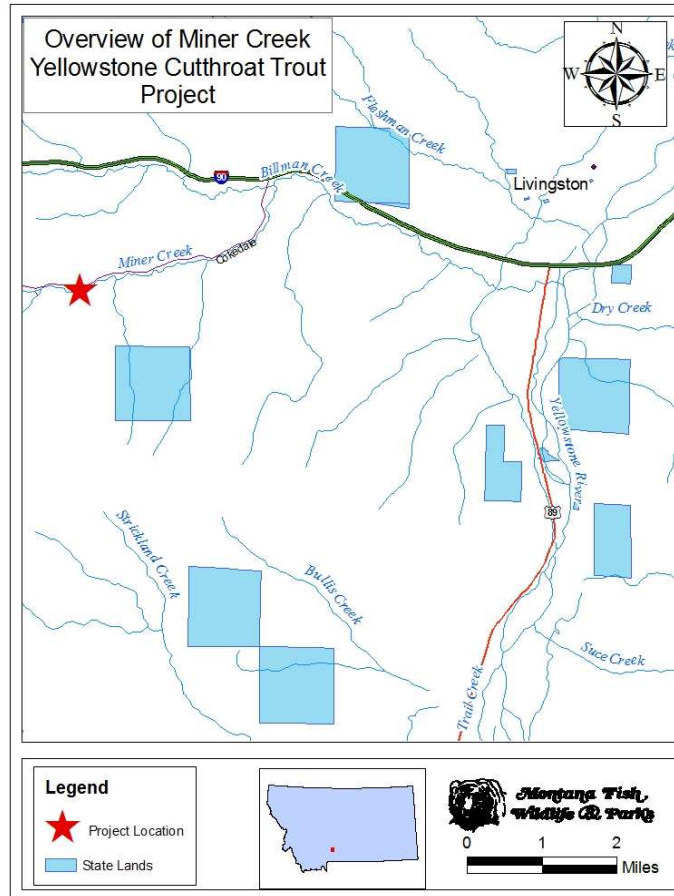


Figure 1: Overview of the Miner Creek Yellowstone cutthroat trout conservation project location.

Existing Conditions on the Property

Observations of habitat in 2009 and 2012 provide the basis for describing existing conditions and limiting factors. For most of the property (Figure 2), riparian health and function, and stream morphology are intact, as the local topography and some fencing keeps livestock from the stream. The result is a dense riparian canopy, and a relatively narrow and deep single thread channel (Figure 3). Yellowstone cutthroat trout were abundant in this reach, and some fish reached nearly 12 inches in length, which is impressive for a stream of this size (MFISH database).

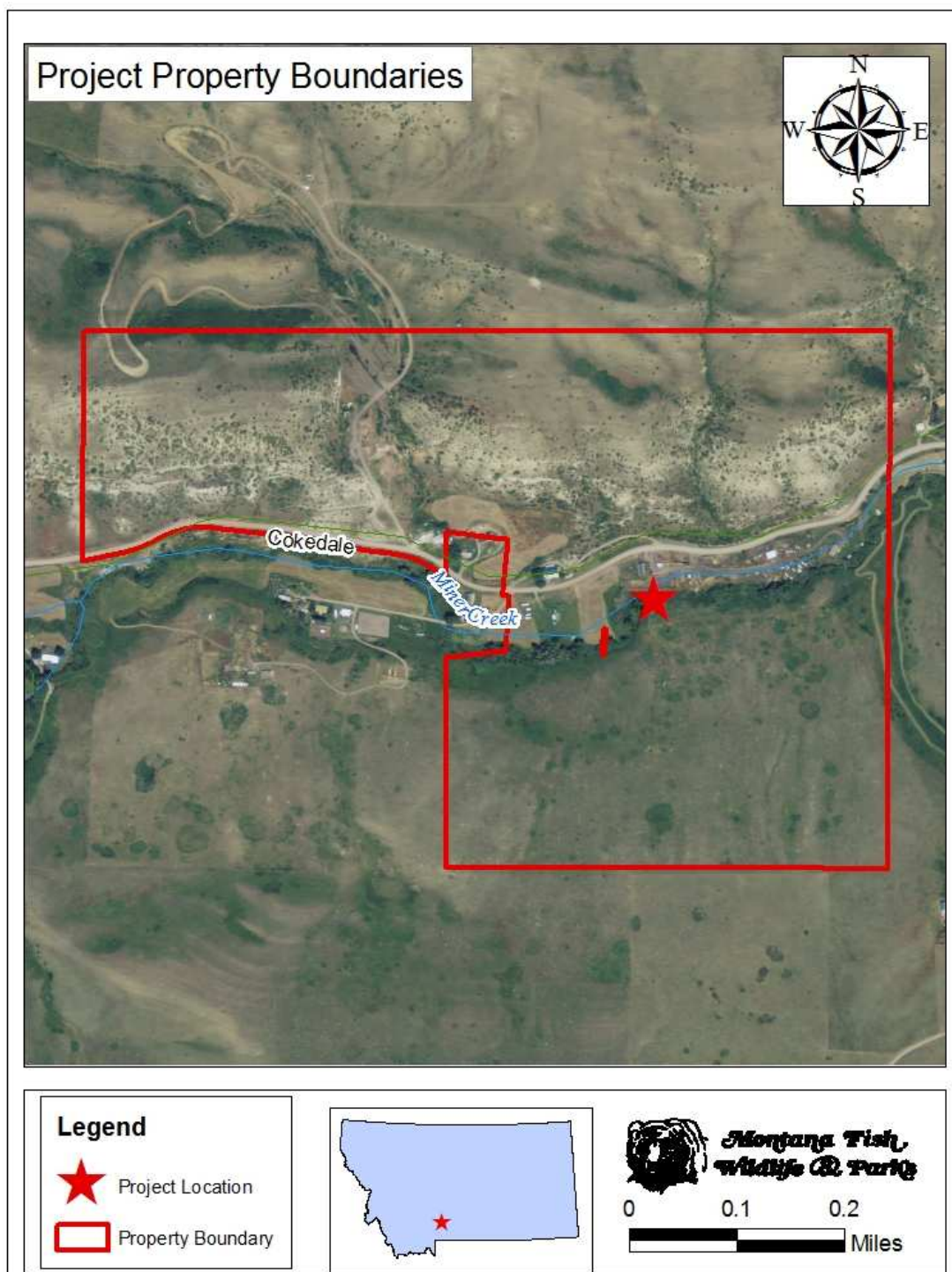


Figure 2: Aerial photo showing property boundaries associated with the Miner Creek Yellowstone cutthroat trout conservation project.



Figure 3: Typical view of Miner Creek through the Kinnick property showing dense riparian overstory, and relatively narrow and deep channel.

The problematic portion of the property is a stream crossing, where the combination of an undersized, culvert and excessive use by livestock has contributed to a loss of riparian cover and function, and substantial alterations in channel morphology. The channel through this section is overly wide, and the banks are heavily trampled mud (Figure 4). At one point, this crossing was able to accommodate trucks and tractors; however, the culvert is no longer functioning, and captures only a portion of the flow (Figure 5). The presence of large rock within the stream does not contribute to stream channel function, and poses a problem for a number of the horses that suffer from founder. The landowner provides horse-boarding services, and with the poor economy, they have been burdened with abandoned horses with health problems.



Figure 4: View of the problematic stream crossing on Miner Creek and adjacent corrals.



Figure 5: Nonfunctional culvert on Miner Creek.

The grazing and trampling has also removed most of the vegetation adjacent to the corrals (Figure 6), which has eliminated the buffering capacity of the riparian area and adjacent uplands to filter the nutrient and sediment load. In addition, trampling contributes to erosion adjacent to the stream. As a result, this reach is a point source for nutrients and sediments, and addressing these problems is consistent with pending water quality planning for Billman Creek.



Figure 6: Absence of vegetative filter on both sides of Miner Creek that would filter nutrients and sediment contributed from corrals and hillslope erosion.

Proposed Actions

The solutions to restore this discrete, but highly degraded portion of Miner Creek will include a combination of replacing the stream crossing, implementation of BMPs, and revegetation. Removal of the existing culvert and large rock, followed by installation of a crossing with suitable sized culverts will be the first component.

Selection of the proper sized pipe followed hydrologic analysis using the USGS's Montana flood-frequency and basin-characteristic model for ungaged sites (Figure 7) and the HY-8 culvert hydraulics model (Table 1). The selected option was a 12-ft by 5-ft open bottom arch pipe with steel footings (EcoArch™), along with installation of two 30-inch corrugated metal pipes for relief during high flows (Figure 8 and Figure 9). Bottomless arch pipes have the advantage of being able to pass a range of organisms as rocks maintain the bankfull elevation the pipe and fish swim through a natural streambed rather than corrugated pipe.



Montana Flood-Frequency and Basin-Characteristic Data

Estimate Flood Discharges at Ungaged Sites in Montana -- (continued)

Summary of Estimation Parameters Selected:

Name for this estimation: Miner Creek Road Crossing
 Region: Upper Yellowstone
 Estimation method: Basin and Climatic Characteristics Only
 Drainage area in square miles: 14
 Percent basin above 6,000 feet: 50

Flood Discharge Estimation:

(In the Flood Discharge table, RI is the Recurrence Interval, in years; STD ERR is the Standard Error; and 90% PRED. INTERVAL is the 90% Prediction Interval, in cubic feet per second)

METHOD: Regression on basin characteristics

Flood frequency estimates for

Miner Creek Road Crossing

Upper Yellowstone-Central Mountain Region: A = 14.00 B6 = 50.

RI	DISCHARGE (cfs)	STD ERR OF PREDICTION (%)	90% PRED. INTERVAL
2	77.	94.1	20.6
5	152.	71.9	52.0
10	218.	62.6	84.0
25	320.	56.3	133.9
50	407.	55.0	173.5
100	503.	55.8	211.9
200	609.	58.4	247.5
500	766.	64.0	289.3

Montana Flood-Frequency and Basin-Characteristic Data

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0.183

http://mt.water.usgs.gov/freq?page_type=gen_stats_4&estimate_nm=Miner+Creek+Road+... 5/17/2012

Figure 7: Estimated discharges for the Miner Creek stream crossing from the USGS's Montana flood frequency and basin characteristic model.

Table 1: Results of the HY-8 analysis for culvert selection.

HY-8 Analysis Results

Crossing Summary Table

Culvert Crossing: Miner Creek Culvert

Headwater Elevation (ft)	Total Discharge (cfs)	Arch Open Bottom Discharge (cfs)	Circular Discharge (cfs)	Roadway Discharge (cfs)	Iterations
5107.50	2.00	1.99	0.00	0.00	13
5107.59	51.80	51.46	0.29	0.00	5
5108.39	101.60	94.14	7.43	0.00	4
5108.96	151.40	133.13	18.22	0.00	3
5109.48	201.20	170.29	30.92	0.00	2
5110.00	251.00	207.69	43.31	0.00	3
5110.53	300.80	247.11	53.70	0.00	3
5110.74	320.00	262.59	57.28	0.00	8
5111.29	400.40	302.48	65.69	32.14	6
5111.47	450.20	311.64	68.32	70.00	5
5111.63	500.00	319.44	70.47	109.97	5
5111.00	212.86	151.40	61.46	0.00	Overtopping

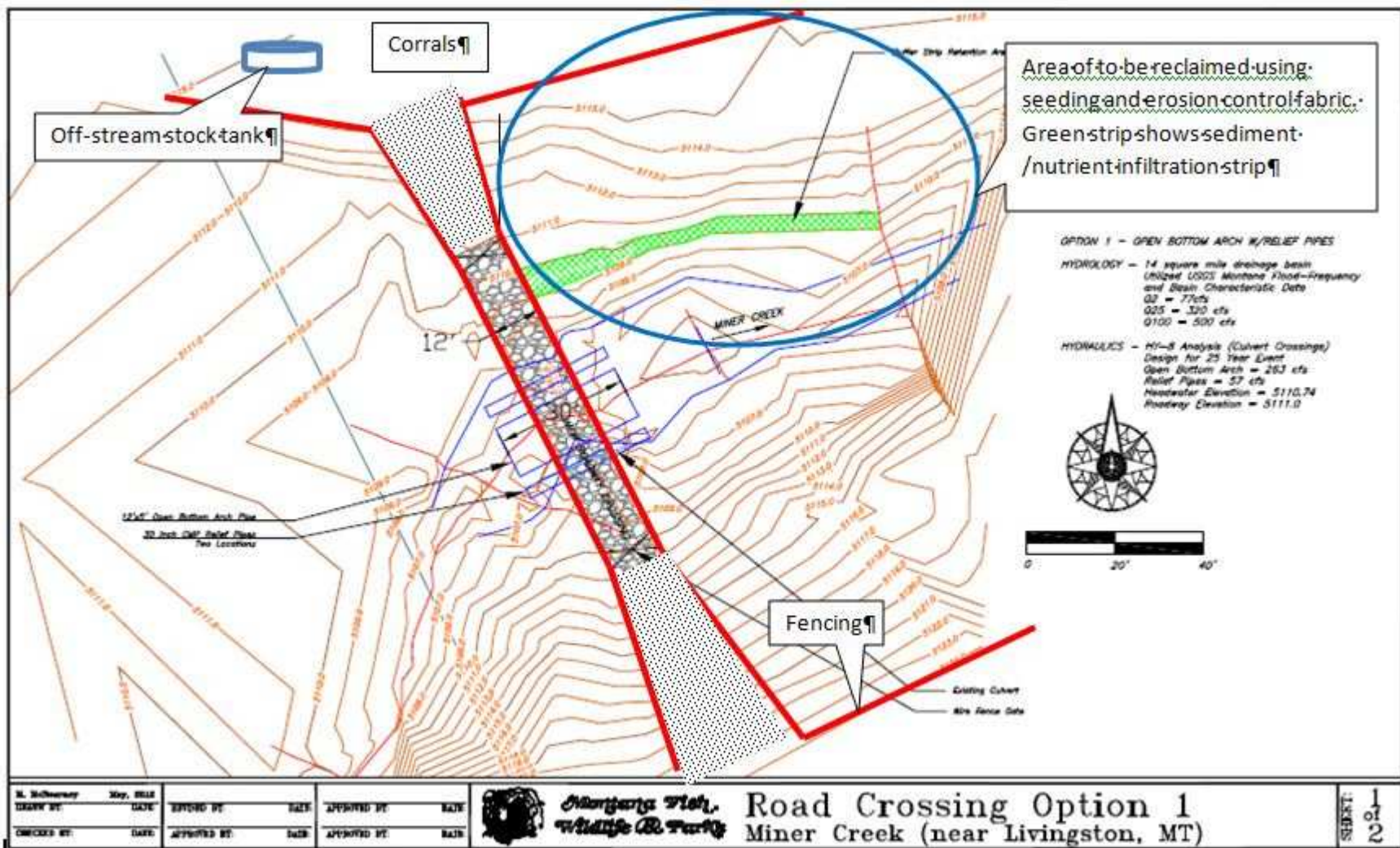


Figure 8: Conceptual design for stream crossing and fencing plan (plan view)

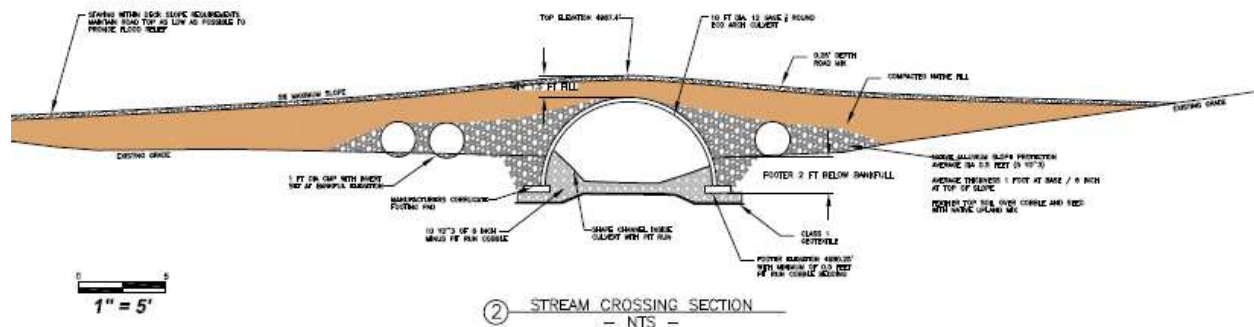


Figure 9: Conceptual design for the road crossing, cross-sectional view (from OASIS 2008²). This drawing differs from the proposed in that the overflow pipes are smaller (12-inch versus 30-inch), and the proposed design has only 2 overflow pipes.

This configuration more than satisfies the 25-year event design criteria typical for culvert design (Table 1). Note that a similar approach was used on neighboring Fleshman Creek, and these culverts weathered the spring floods of 2011 with no damage. Although overtopping may occur during 50 year events and larger, the crossing should be resilient to these flows, especially as the stream does not transport large wood, only coarse woody debris. Flooding may result in the need to replace road mix on top of the crossing, which would be the responsibility of the landowner. Removal of coarse woody debris will be another regular maintenance action appropriate for the EcoArch™ and overflow pipes.

The next component will be installation of a fence that funnels livestock from the corral, over the stream crossing, and to the pasture on the south side of the stream. The fencing will follow the alignment shown in Figure 8. Fencing will consist of three strands of smooth or barbed wire, and will follow wildlife friendly fence guidelines established for Future Fisheries Improvement Program projects. Installation of road mix gravel along the path leading from the corrals to the pastureland will prevent trailing and erosion.

Revegetation of the disturbed area between the corrals and upland pasture is another component of restoration (Figure 8). Seeding with a native seed mix appropriate for the site, and installation of erosion control fabric over the seed will expedite recovery of this disturbed area. Bear in mind that the wind on this side of the Wineglass Mountain can be substantial, and fabric will be necessary to keep seed in place so that it can germinate the following spring. Creating a depression between the corrals and the stream will provide an additional trap for overland flow of nutrients and sediment during snowmelt and rain events, and will further decrease delivery of these pollutants to the stream. Livestock will not graze this area, but mowing will occur on occasion to promote plant vigor and the ability of vegetation to take up nutrients.

The final component of the project entails providing off-channel water. Within the corrals, the landowner will install a spring-fed watering device, the Ritchie® Watermatic 150. This watering device will be connected to an existing, developed spring that provides high quality domestic water. This purchase will include the accessories to keep the watering device ice-free, even during winter months. As a result, livestock will have yearlong access to water without trampling the bed and banks of the stream. The selected unit serves up to 40 horses and the boarding facility has a 20-horse limit. The stream channel within the disturbed area will recover naturally with exclusion of horses.

Montana Fish, Wildlife & Parks (FWP), the landowners, and the Natural Resources Conservation Service are partners collaborating on this project. NRCS personnel performed the survey work using a survey grade GPS. They also provided technical assistance on the appropriate fencing to control horses, selected the suitable off-channel watering device based on the number of horses and available water supply, and assisted in developing the project budget. FWP used the NRCS survey data to develop designs and select the appropriate culvert for the location. The landowners are contributing by installing the fencing and off-channel water. They have a keen interest in conserving Yellowstone cutthroat trout in Miner Creek, having grown up catching these fish, and a strong desire to conserve this resource.

Rosgen Level II Characterization of the Project Site

The severity of disturbance within the area slated for restoration precludes assigning a Rosgen channel classification (Rosgen 1996). The stream is overly wide and shallow within this area, but lacks braiding typical of D channel types; at least braiding was not obvious during observed flows. Likewise, the large rock associated with the former road crossing is a deviates markedly from “natural channel” bed material. Highly embedded gravels dominate the substrate upstream and downstream of the old stream crossing.

The reaches adjacent to the restoration area meet the criteria for E channels (Table 2). The surveyed cross-sections are slightly entrenched and have low width-to-depth ratios. Sinuosity, as measured from high resolution aerial photos is relatively high at 1.31. Gravel is the dominant particle gradation, and siltation is considerably less owing to the relatively deep, narrow channel and its efficiency at transporting fines. Survey data of the channel profile collected in May 2012 yielded a slope of 0.02%. Combined, these morphological measures are consistent with an E4 channel classification.

² Note this drawing was created for a different project and is used here for illustrative purposes.

Table 2: Delineative criteria for Rosgen channel classification of undisturbed reaches of Miner Creek.

<i>Cross section</i>	<i>Entrenchment Ratio</i>	<i>Width-to-depth ratio</i>	<i>Sinuosity</i>	<i>Channel Material</i>	<i>Slope</i>	<i>Classification</i>
1 (upstream)	2.3	6.6	1.45	Gravel	0.02%	E4
2 (downstream)	2.2	9.7		Gravel		E4

Literature Cited

Leary, R. 1986. Genetics letter to Chris Clancey. University of Montana, Department of Zoology.

OASIS Environmental. 2008. Voyich Ranch, Fleshman Creek channel restoration. Design report prepared for Dr. D. Voyich.

Rosgen, D. 1996. Applied River Morphology. Wildland Hydrology, Pagosa Springs, Colorado.

Letters of Support



JOE BROOKS CHAPTER # 25 PO BOX 1378 LIVINGSTON, MT. 57047

May 28, 2012

Montana FWP
Carol Endicott
Livingston, MT.

RE: Miner Creek restoration project

Carol –

On behalf of the Joe Brooks Chapter of Trout Unlimited, I am pleased to submit this letter of support for the Future Fisheries application for the Miner Creek Restoration Project. We believe this proposal to better manage flows in the creek through culvert replacement and restoration activities is a very good use of Future Fisheries funds.

We believe this project will be extremely beneficial and instrumental to Yellowstone Cutthroat trout. This project fits within our mission to "conserve, protect, and restore the Yellowstone and its tributaries"

Conservation of our natural resources remains paramount for the Joe Brooks chapter of Trout Unlimited. Therefore, we extend our full support to the Miner Creek Project. Feel free to contact me at (406) 579-7735 with any questions regarding JB TU or their support of this project.

Sharon Sweeney Fee
President
Joe Brooks Trout Unlimited



Patrick Byorth, Staff Attorney
Montana Water Project

Mark Lere
Montana Fish, Wildlife & Parks
Habitat Protection Bureau
PO Box 200701
Helena, MT 59620-0701

May 9, 2012

RE: Miner Creek Yellowstone Cutthroat Conservation Project

Dear Mark,

Hope all is well with you and the Future Fisheries Improvement Program. I just wanted to voice Trout Unlimited's support for Carol Endicott's Miner Creek project. As you know, TU's Montana Water Project is focused on conservation and restoration of habitat and water quality and quantity for coldwater fish. We are glad to support this project, which entails replacing an undersized culvert, controlling a livestock crossing and improving riparian condition.

In my tenure with FWP and with TU, I have personally observed the significant results of relatively small, simple projects that eliminate sediment sources in small, headwater tributaries inhabited by cutthroat trout. Even short reaches where livestock congregate can dump tons of fine sediments into a stream and limit habitat quality for miles below. The project on Miner Creek will eliminate a sediment and nutrient source that affects the health of the Billman Creek system.

By reducing this sediment and nutrient source, spawning success should increase and maintain a more healthy cutthroat trout population. Replacing a nutrient source with a riparian buffer should improve water quality as well. All in all, an investment by the Future Fisheries in the Miner Creek project will certainly enhance the cutthroat population.

TU appreciates all the work you, Carol, and the FFIP Panel do!

Sincerely,

A handwritten signature in black ink that reads "Patrick C. Byorth".

Patrick Byorth

Trout Unlimited: America's Leading Coldwater Fisheries Conservation Organization
321 East Main Street, Suite 411, Bozeman, MT 59715
(406) 522-7291 ext. 100 • Fax: (406) 522-7695 • email: pbyorth@tu.org • www.tu.org